

ABSTRACT

A ceramic tile includes a ceramic core material and an oxide ceramic matrix composite (CMC), where the ceramic core material has at least one surface covered by the oxide CMC. The oxide CMC includes a ceramic fiber, with a cured metal oxide ceramic material impregnating the ceramic fiber. An exemplary embodiment of the ceramic tile provided as part of the invention further includes a tough low temperature cure coating (TLTC) which infiltrates the ceramic core surface before it is covered by the oxide CMC. The TLTC includes a cured ceramic powder together with a binder. The metal oxide ceramic material impregnating the ceramic fiber, and the TLTC are co-cured, meaning that neither is cured when the CMC is wrapped around a surface of the TLTC-infiltrated ceramic core, and a curing step is performed on both uncured ceramic materials at the same time.